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Proceedings of the Central and Arctic Regional Science Advisory Process on the Recovery Potential Assessment of Eastern Pondmussel (*Ligumia nasuta*), Fawnsfoot (*Truncilla donaciformis*), Mapleleaf (*Quadrula quadrula*) and Rainbow (*Villosa iris*)

19-20 October 2010

Burlington Art Centre
1333 Lakeshore Road
Burlington, ON

Todd Morris
Meeting Co-chairperson

Lynn Bouvier
Meeting Co-chairperson

Compte rendu du Processus de consultation scientifique régional du Centre et de l'Arctique sur l'évaluation du potentiel de rétablissement de la ligumie pointue (*Ligumia nasuta*), du troncille pied-de-faon (*Truncilla donaciformis*), de la mulette feuille-d'érable (*Quadrula quadrula*) et de la villeuse irisée (*Villosa iris*)

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Great Lakes Laboratory for Fisheries and Aquatic Sciences /
Laboratoire des Grands Lacs pour les Pêches et les Sciences Aquatiques
867 Lakeshore Rd. / 867, Chemin Lakeshore
Burlington ON L7R 4A6 Canada

December 2010 | **Décembre 2010**

Canada

Foreword

The purpose of these Proceedings is to document the activities and key discussions of the meeting. The Proceedings include research recommendations, uncertainties, and the rationale for decisions made by the meeting. Proceedings also document when data, analyses or interpretations were reviewed and rejected on scientific grounds, including the reason(s) for rejection. As such, interpretations and opinions presented in this report individually may be factually incorrect or misleading, but are included to record as faithfully as possible what was considered at the meeting. No statements are to be taken as reflecting the conclusions of the meeting unless they are clearly identified as such. Moreover, further review may result in a change of conclusions where additional information was identified as relevant to the topics being considered, but not available in the timeframe of the meeting. In the rare case when there are formal dissenting views, these are also archived as Annexes to the Proceedings.

Avant-propos

Le présent compte rendu a pour but de documenter les principales activités et discussions qui ont eu lieu au cours de la réunion. Il contient des recommandations sur les recherches à effectuer, traite des incertitudes et expose les motifs ayant mené à la prise de décisions pendant la réunion. En outre, il fait état de données, d'analyses ou d'interprétations passées en revue et rejetées pour des raisons scientifiques, en donnant la raison du rejet. Bien que les interprétations et les opinions contenus dans le présent rapport puissent être inexacts ou propres à induire en erreur, ils sont quand même reproduits aussi fidèlement que possible afin de refléter les échanges tenus au cours de la réunion. Ainsi, aucune partie de ce rapport ne doit être considéré en tant que reflet des conclusions de la réunion, à moins d'indication précise en ce sens. De plus, un examen ultérieur de la question pourrait entraîner des changements aux conclusions, notamment si l'information supplémentaire pertinente, non disponible au moment de la réunion, est fournie par la suite. Finalement, dans les rares cas où des opinions divergentes sont exprimées officiellement, celles-ci sont également consignées dans les annexes du compte rendu.

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K1A 0E6

http://www.dfo-mpo.gc.ca/csas/

CSAS@DFO-MPO.GC.CA

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TABLE OF CONTENTS

SUMMARY v
SOMMAIRE v
INTRODUCTION 1
DETAILED DISCUSSION 1
SPECIES DESCRIPTION AND HABITAT REQUIREMENTS 1
POPULATION STATUS 2
RECOVERY MODELLING 3
THREAT ANALYSIS 3
ALTERNATIVES TO ACTIVITIES / FEASIBLE MITIGATION METHODS 6
SOURCES OF UNCERTAINTY 7
REFERENCES 9
Appendix 1. Terms of Reference 10
Appendix 2. Meeting Participants 12
Appendix 3. Agenda 13

SUMMARY

A regional science peer-review meeting was held from 19 to 20 October 2010 in Burlington, Ontario. The purpose of the meeting was to assess the recovery potential of the Eastern Pondmussel (*Ligumia nasuta*), Fawnsfoot (*Truncilla donaciformis*), Mapleleaf (*Quadrula quadrula*), and Rainbow (*Villosa iris*) based on the 17 steps outlined in the Fisheries and Oceans Canada (DFO) Recovery Potential Assessment (RPA) framework. The Committee on the Status of Endangered Wildlife in Canada (COSEWIC) has designated Eastern Pondmussel (April 2007), Fawnsfoot (April 2008), Mapleleaf - Manitoba population (April 2006) and Rainbow (April 2006) as Endangered, while Mapleleaf - Ontario population (April 2006) was designated as Threatened. None of the four mussel species are currently listed under the *Species at Risk Act* (SARA). The resulting RPA Science Advisory Report will provide the information and scientific advice required for the Department to meet various requirements of SARA for these species including listing decisions, authorizations to carry out activities that would otherwise violate SARA and development of recovery strategies. Meeting participants included experts from DFO, Environment Canada, Ontario Ministry of Natural Resources, Bishops Mills Natural History Centre, conservation authorities and academia. This proceedings report summarizes the relevant discussions from the peer-review meeting and presents revisions to be made to the associated research documents.

SOMMAIRE

Une réunion régionale d'examen scientifique par des pairs a eu lieu du 19 au 20 octobre 2010 à Burlington, en Ontario. Le but de la réunion était d'évaluer le potentiel de rétablissement de la ligumie pointue (*Ligumia nasuta*), du troncille pied-de-faon (*Truncilla donaciformis*), de la mulette feuille-d'érable (*Quadrula quadrula*) et de la villeuse irisée (*Villosa iris*) selon les 17 étapes du cadre d'évaluation du potentiel de rétablissement (EPR) de Pêches et Océans Canada. Le Comité sur la situation des espèces en péril au Canada (COSEPAC) a statué que les espèces ou populations suivantes étaient « en péril » : la ligumie pointue (avril 2007), le troncille pied-de-faon (avril 2008), la mulette feuille-d'érable – population du Manitoba (avril 2006) et la villeuse irisée (avril 2006); la mulette feuille d'érable – population de l'Ontario a pour sa part été désignée comme étant « menacée » (avril 2006). Aucune de ces quatre espèces de mollusques n'est actuellement inscrite à la liste de la *Loi sur les espèces en péril* (LEP). L'avis scientifique découlant de l'EPR fournira l'information et les avis scientifiques dont le Ministère a besoin pour respecter les diverses exigences de la LEP pour ces espèces, y compris la prise de décisions quant à leur inscription à la liste, l'autorisation de tenir des activités qui, autrement, iraient à l'encontre de la LEP ainsi que l'élaboration de programmes de rétablissement. Parmi les participants, mentionnons des spécialistes du MPO, d'Environnement Canada, du ministère des Richesses naturelles de l'Ontario, du Bishops Mills Natural History Centre ainsi que des représentants du milieu universitaire et d'offices de protection de la nature. Le présent compte rendu résume les discussions tenues au cours de cette réunion d'examen par des pairs et présente les changements qui doivent être apportés aux documents de recherches connexes.

INTRODUCTION

The Committee on the Status of Endangered Wildlife in Canada (COSEWIC) has designated Eastern Pondmussel (April 2007), Fawnsfoot (April 2008), Mapleleaf - Manitoba population (April 2006) and Rainbow (April 2006) as Endangered, while Mapleleaf - Ontario population (April 2006) was designated as Threatened. None of the four mussel species are currently listed under the *Species at Risk Act* (SARA).

The purpose of the meeting, as described in the Terms of Reference (Appendix 1), was to assess the recovery potential of the four mussels. The Recovery Potential Assessment (RPA) is a science-based peer review process that assesses the current status of the species by addressing the 17 steps in the RPA framework outlined in the Revised Protocol for Conducting Recovery Potential Assessments (DFO 2007). The current state of knowledge about habitat requirements, threats to both habitat and the mussels, and measures to mitigate these impacts are included in the Science Advisory Report. A peer-review meeting was held at the Burlington Art Centre, Burlington, Ontario from 19 to 20 October 2010 to discuss the RPA.

Meeting participants included experts from DFO, Environment Canada, Ontario Ministry of Natural Resources, Bishops Mills Natural History Centre, conservation authorities and academia (Appendix 2). The meeting followed the agenda outlined in Appendix 3.

This proceedings report summarizes the relevant discussions from the peer-review meeting and presents revisions to be made to the associated research documents. The Research Documents (Bouvier and Morris 2010; Young and Koops 2010) were developed from the working papers presented at the workshop, and the Science Advisory Report summarizes the current understanding of the distribution and habitat requirements of these species, along with recovery targets and times to recovery while considering various management scenarios (DFO 2010).

DETAILED DISCUSSION

The meeting co-chair provided the participants with an introduction to the SARA listing and RPA processes. He explained how the RPA will be used, as well as the objectives of the meeting. A draft RPA, in the form of two working papers, had been developed by DFO and provided to participants in advance of the meeting. The draft reports were the basis for discussion and participants were encouraged to add to or change the material as needed to ensure that the best, most accurate information was included.

SPECIES DESCRIPTION AND HABITAT REQUIREMENTS

Presenter: Lynn Bouvier

The presentation included descriptions of Eastern Pondmussel, Fawnsfoot, Mapleleaf and Rainbow; their life cycles; and the habitat requirements for three life stages (glochidium, juvenile, adult).

A participant noted that each species description offered a comparison to other mussel species except for that of Rainbow. It was mentioned that the juvenile Mucket looked similar to Rainbow; the presenter decided to add the comparison to the species descriptions.

Another participant mentioned that the documented maximum length of Eastern Pondmussel was shorter than one that the participant had caught. The presenter agreed to update the description according to the participant's data.

POPULATION STATUS
Presenter: Lynn Bouvier

The presentation on population status included population distribution, abundance and population trajectory of the four mussel species and the certainty that the researchers had of the information's accuracy.

One participant inquired as to why the presenter used the starting date of 1990 for tracking mussel abundance. Another explained that it corresponds to the time when there was concerted work done targeting systematic mussel surveys.

The Area of Occupancy (AO) for Cedar Creek (Long Point Bay) appeared to be incorrect and needed to be verified. A participant responded that the numbers were possible, since they were meant to reflect the entire area of the creek and did not represent the two sites were Eastern Pondmussel was located.

For Eastern Pondmussel population status, it was decided to include Beaver Lake and the Grand River in Table 4 of the research document.

A participant added that the table should differentiate between the Great Lakes and the connecting channels, since specimens were extirpated from both.

There was some discussion surrounding the correction factor applied to Eastern Pondmussel population estimates from the St. Clair River delta; it was recommended that the text include a note on this subject. The issue of bias in these calculations was also raised: researchers did not consider the distance swam without finding a mussel; as a result, there would be a bias ignoring very low density.

For Fawnsfoot population status, it was mentioned that the authors could take the average of the block densities to generate a standard error for the Sydenham River since density estimates were only available for a single site. It also was mentioned that the same method could be applied to the Grand River to obtain standard error across block densities. It was decided that this analysis would not be completed to maintain consistency for all sites; rather, all density estimates represented by a single site will be highlighted in the text.

A participant asked how categories are assigned for the abundance index. The presenter explained that they are assigned relative to other sites for that particular species.

In the review of the Mapleleaf MB DU (Manitoba designatable unit) a participant asked why there was no abundance index listed for the Manitoba rivers. The presenter responded that updates to the data were required. The participant offered to provide the necessary values.

During the discussion of the Mapleleaf ON DU (Ontario) population status summary, a participant questioned whether the St. Clair River delta should be considered a population. The presenter responded that it is being listed as a location, adding that there had been some debate surrounding which locations to include. The decision had been to mention any location where a live individual had been caught since 1990.

In the discussion of the Rainbow population status, it was decided to revise the areas in which the species was known to occur in accordance with new data brought forward by one of the participants.

A participant recommended that mussel populations of one individual be marked with an asterisk in the research document. The rest agreed that this suggestion should be put into effect.

There was some discussion surrounding how to document findings and trajectories where there is a lack of sufficient data. The presenter mentioned that the research document could perhaps include a comparison to overall unionid densities and that this will be revisited in the next draft of the research document.

RECOVERY MODELLING
Presenter: Jennifer Young

The presentation on recovery projections covered the life cycle of the mussels, parameter estimates, sensitivity patterns, predicting patterns with life history, classification of the four mussels, and uncertainties and missing information.

The presenter noted that the term "sensitivity" refers to sensitivity to proportional environmental change. Because adult survival is high, changes affecting mussels in that life stage would be significant. The presenter noted that, for this reason, one has to be careful interpreting the data.

THREAT ANALYSIS
Presenter: Todd Morris

The presentation on threat analysis overviewed the likelihood and impact of threats, as well as the certainty associated with threat impact.

A participant asked if the term "jeopardize" was used in the RPA. The presenter established that it was a layman's term.

The presenter also noted that the analysis of exotic species applied to their impact on the mussel and not the host fish. It was agreed that the threat analysis should be included as an appendix to the research document posted online.

During the review of the Ausable River (populated by Mapleleaf and Rainbow), there was some discussion surrounding the threat impact ranking (TI) of turbidity. It was determined that the TI for Mapleleaf and Rainbow should be listed separately, since these two mussel species occupy different regions of the watershed. The threat likelihood (TLH) was kept as "known" for both, and the TI was changed to "high" for Rainbow and "medium" for Mapleleaf.

There was some discussion surrounding the impact of nutrient loading on river systems and its effects on mussels. The participants decided to change the certainty ranking (C) to 3 ("expert opinion") and to split the impact between Mapleleaf and Rainbow. The TI for Rainbow was listed as "high"; the TI for Mapleleaf was listed as "medium".

During the review of the Bayfield River (Mapleleaf, Rainbow), it was again decided to split rankings for Mapleleaf and Rainbow. The TLH for turbidity was kept as "known" for both. The TI

was changed to "high" for Rainbow and "medium" for Mapleleaf. Nutrient loading was also split, with TI changed to "high" for Rainbow and "medium" for Mapleleaf.

The TI for altered flow regime was changed to "medium". A participant noted that there were no mussels in the area where the water often dries up, and another added that this would be evidence of high impact. It was decided to add this discussion to the text.

In the threat analysis for Lyn Creek (Eastern Pondmussel), a participant asked if the reservoir was a likely introductory spot for Zebra Mussel; the response was that there are two lakes with a drop of about 50 cm and that downstream there are many boats and camps; it was unknown what the likelihood was of the Zebra Mussel going upstream. No changes were made to the exotic species analysis. There was some discussion surrounding turbidity and the qualities of the sediment in the area. A participant remarked that scientists should be cautious in their projections because they do not know enough about these subjects.

Habitat removal for the area was designated a TLH of "unlikely", TI of "high" and C of 3. A participant noted that the local conservation authority should be able to provide more information on the subject.

"Canoeing" was removed from the list of recreational activities.

In the discussion surrounding the findings for the Ruscom River (Mapleleaf), a participant asked if the threat of Zebra Mussel was the same in the upper reaches of the river where the Mapleleaf were found. The response was that there are Zebra Mussel at the lower site but their existence was unknown at the upper one. The exotic species analysis was not changed. The TI for both turbidity and nutrient loading was changed to "medium". For altered flow regimes, a participant noted that the TLH should change to "known" because there are active drains in the area. Another added that people are increasing the amount of tile drains in the field and bringing the headwaters into production. The TI remained "medium", but the TLH was changed to "known".

In the review of the analysis for the Grand River (Fawnsfoot, Mapleleaf, Rainbow), it was decided to group Mapleleaf and Fawnsfoot together and Rainbow separately (as opposed to all three together). For Rainbow, the TLH of contaminants was changed to "known" and the TI of habitat removal and fish hosts was changed to "high". A participant noted that anything that would impact fish hosts would have a different effect on different species of mussel.

In the analysis of Long Point Bay (Eastern Pondmussel), the TLH for exotic species was changed to "known", while the TI remained "high". A participant noted that Eastern Pondmussel are completely surrounded by invasive species; another added that phragmites needed to be included in the discussion in the text. A participant asked if there was any evidence eutrophication events had an impact on Eastern Pondmussel. The effects were discussed and it was decided that the presenter would look into increasing the level of certainty for nutrient loading. A participant raised the concern that altered flow regimes had not been included in the analyses of lake areas, and therefore issues related to changes in water level were not being addressed in the document. It was decided that the text would include a paragraph on water level variations. The TI for habitat removal was changed to "high"; to better inform the TLH analysis, it was decided that the presenter would contact Long Point Conservation Authority about dredging in Turkey Point marshes.

The analyses of the Welland River (Rainbow) and Jordan Harbour (Mapleleaf) required contributions from outside members and research documents, which a participant agreed to collect.

During the analysis of the Salmon River (Rainbow), a participant asked if Beaver Lake was connected to the Salmon River. Another confirmed that it was, and it was decided to include the lake in the analysis. The participants agreed to look for province monitoring data to inform their review of the area.

In the analysis of the Saugeen River (Rainbow and Fawnsfoot), the participants made a significant number of changes. The participants agreed to consult outside specialists on their decisions. There was also some discussion surrounding the applicability of the category of "fish hosts" to the Saugeen with respect to Freshwater Drum since this fish host is not known to be present in the system; it was decided to add an explanatory note to the text.

The next analysis was that of the St. Clair River delta (Eastern Pondmussel, Fawnsfoot, Mapleleaf, Rainbow). One participant noted that there is only one specimen of Fawnsfoot and one of Mapleleaf in the area; however, no changes were made to the analysis in that regard. There was some discussion surrounding dredging in the channel. It was stated that dredging occurs every year, but that there are no wakes, only changes to flow. The question was raised as to where the dredgeate is deposited, but participants responded that it is not deposited in the area. One proposed that shipping did not pose a threat to the mussels; however, spills would have a significant impact. The TI of habitat removal and alteration for all four species was changed to "high". Regarding fish hosts in the area, a participant noted that the population of native benthics has decreased; another added that gobies do not appear to like the delta. The TLH and TI of fish hosts for Eastern Pondmussel, Mapleleaf and Fawnsfoot were changed to "unlikely" and "high", respectively. For Rainbow, the TLH was changed to "known" and the TI to "high".

During the discussion of the threat analysis of the Sydenham River (Fawnsfoot, Mapleleaf, Rainbow), a participant noted that Zebra Mussel were found on Mapleleaf at the bottom of the river. However, another participant noted that that area was below the bulk of the habitat. The TLH of exotic species therefore was changed to "unlikely". The TI of fish hosts was changed to "high" for all three species, while the TLH was changed to "unlikely" for Fawnsfoot and Mapleleaf and "known" for Rainbow. A participant asked if only gobies impact Rainbow; another responded that they have the largest impact on that particular species.

There was some discussion surrounding the definition of altered flow regimes. A participant asked if there was a way to explain the difference between dams and tile drains; another responded that it was mentioned in the text, but not on a site-by-site basis. It was posited that such a differentiation might not be necessary. However, no changes were made to the document.

A participant asked if there was any benefit to removing the category 'predation and harvesting' from the tables and adding it to the text, since it was always being assigned a TLH of "unlikely" and a TI of "low". After some discussion about natural predators, the impact of human activities on those predators and previous assignations in the tables, it was decided that the text should be modified to indicate that the TLH is unlikely, based on expert opinion.

In the threat analysis of the Thames River (Mapleleaf, Fawnsfoot, Rainbow), there was some discussion surrounding the monitoring and control of Zebra Mussel in the area. Zebra Mussel

have been tracked on data sheets, but not monitored in the same way that other species are. No decisions were made about future action at this time. The TLH of exotic species was changed to "known" for Mapleleaf and Fawnsfoot and "likely" for Rainbow. It was noted that the upper river is high from agriculture. The TI of turbidity was changed to "medium" for Mapleleaf and Fawnsfoot and "high" for Rainbow; the same changes were made to the category of nutrient loading. A participant noted that small tributaries, where there are no mussels, have low flow. Another added that if the flow was restored in those areas, there might be potential for recovery. Consequently, the TI of altered flow regimes was changed to "high". In a discussion of fish hosts, participants clarified that there are no real barriers between the fish and the upper Thames River. The TLH was changed to "unlikely" for Fawnsfoot and Mapleleaf and "likely" for Rainbow.

At this point in the review, there was some discussion regarding where to expand the TI in the tables to account for each mussel species. It was decided to expand the TI and then see where tables can be collapsed upon completion of the document.

During the threat analysis of the Assiniboine River (Mapleleaf), there was some discussion surrounding the definition and analysis of exotic species. A participant said that there were no known occurrences of Zebra Mussel to date, but that whether or not there would be in the near future was unknown. Another asked if Zebra Mussel and Quagga Mussel were the only exotic species that impacted the four mussels. A third participant responded that the panels have discussed including vegetation in the category, but that for the most part it referred only to mussels. The TLH of exotic species was changed to "unlikely", the TI to "high", and the C to 3. The TI of turbidity was changed to "medium", and that of nutrient loading to "low". It was noted that the nutrient load in the area is high and agricultural based. Scientists have been designating the phenomenon as eutrophication, but the river itself will not eutrophy. In a discussion of fish hosts, a participant noted that there are definite threats to catfish in the area; however, the population is so abundant that the threats do not affect them as a species. The TLH for fish hosts was changed to "unlikely" and TI to "high". The same changes were made to the category of predation and harvesting.

At this point the presenter explained that the Red River had been removed from the document because the last known record for the area was from the 1960s. A participant responded that mussels had been observed recently when the water was low. It was agreed that the Red River should be included in the document, with a note in the text explaining the exception to the 1990 guideline given at the outset of the presentation. In the discussion of the Red River (Mapleleaf), a participant noted that Zebra Mussel are present in North Dakota, so they are likely to occur in the Red River. The TLH of exotic species was therefore changed to "likely" and the TI to "high". In the review of altered flow regimes the TLH was changed to "known" and the TI to "medium".

ALTERNATIVES TO ACTIVITIES / FEASIBLE MITIGATION METHODS
Presenter: Lynn Bouvier

The presentation addressed the Pathways of Effect (PoE), alternatives to activities which cause harm to the four mussels and methods of mitigating harmful effects.

The presenter noted that Fish Habitat Management (DFO) and Science (DFO) have created a document that lists all the PoE, as well as potential mitigations and alternatives to break pathways (Coker *et al.* 2010). The document can be used as a companion to Recovery Potential Assessments and to provide alternatives and mitigations for habitat-related threats.

A participant asked if the document refers to mussels specifically; the presenter answered that it did not, and that some situations listed would be relevant to mussels and some would not.

In the discussion surrounding the mitigation of exotic species, a participant asked if Science might give specific examples of mitigation actions. The presenter responded that those details were left out because the recovery team must decide how these actions should be implemented.

There was extensive discussion about which details should be included in the monitoring plan, such as calcium levels, flow and temperature of the water. A participant intervened, saying that these details will depend on the body of water, adding that they want to ensure that they have captured the important steps in the research document. It was added that Science might suggest calculating the likelihood of invasion. It was agreed to add that point to the document.

There was also some discussion surrounding the order in which the bullet points occur; however, no changes were made to that effect.

In the review of the mitigation of fish hosts, the participants explored methods of controlling the impact of fishing on the four mussel species. There was a debate surrounding the benefits of recommending a catch-and-release program for anglers; the presenter proposed that Science recommend watershed monitoring for exotic species which may impact the host fish, and then propose the same type of mitigation that was suggested for exotic species impacting the four mussels.

For predation and harvesting it was suggested that the document include a bullet point on an education campaign on the positive effects of mussels. It was also suggested that the "Sources of Uncertainty" section make note of unknown raccoon and beaver densities.

SOURCES OF UNCERTAINTY
Presenter: Lynn Bouvier

The presentation outlined the "knowledge gaps" in the analyses, including life history characteristics, habitat requirements and threat status.

A participant suggested that the heading of life history characteristics include a point about the gravid period. The inclusion of "relocation" in the habitat requirements was questioned, but ultimately left in the document.

In the discussion of population status, a participant mentioned that, because the population is so widespread, they should try to find more remnant populations. Another responded that they use abundance data, trend through time information and distribution of occupancy. It was mentioned that additional information should be used to define the distribution for the population status analysis.

In the review of population modelling, a participant asked if it would be beneficial to explore forms of modelling other than the current matrix-based one being applied. The response was that different approaches to modelling have different data requirements; part of the reason for using the matrix model is that it fits with the amount of data that the researchers have.

There was extensive discussion about possible modelling options, the current model used and the variables taken into consideration for the analyses. In the end, no changes were made to the model.

A participant raised the issue that the host fish section of the analysis is very important when looking at the threats to the mussels, but it was ignored in the population modelling. Another responded that that section had been glossed over for this particular meeting because of a lack of information on the subject. It was suggested that the bullet points be sent to faculty members at different universities for input.

The participants recommended that exotic species, predation and harvesting and recreational activities be added to the threat status overview.

A participant asked whether or not Science was going to include an analysis of allowable harm; the response was that data limitations made it impossible to offer those estimates. General statements to be used for guidance were incorporated into the document by the presenter.

A participant asked if there was data on mussel mortality as a result of ongoing human activities; two others responded that there were data for relocation, and that the mortality rate for all mussels was 0-4%.

In the review of the science advice on allowable harm, the participants agreed to include specific sensitivities for each of the four species of mussel. Another asked whether there should be a more explicit species description of the Eastern Pondmussel in the bullet points (e.g., its small population size and wide distribution) for the benefit of readers. A third responded that such facts should be made clear in the text.

There was some discussion about whether fish hosts should be addressed separately or understood as part of the critical habitat. However, no changes were made to the advice on allowable harm.

The author thanked the participants for their time and stated that she would modify the documents from the meeting in accordance with their comments.

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Appendix 1. Terms of Reference

Terms of Reference

Recovery Potential Assessment of Mapleleaf, Rainbow, Eastern Pondmussel and Fawnsfoot

Regional Advisory Meeting

Burlington Art Centre, Burlington, ON

19-20 October 2010

Co-chairs: Todd Morris and Lynn Bouvier

Background

The Committee on the Status of Endangered Wildlife in Canada (COSEWIC) has designated Eastern Pondmussel (April 2007), Fawnsfoot (April 2008), Maplepleaf (April 2006) and Rainbow (April 2006) as Endangered. None of the four mussel species are currently listed under the *Species at Risk Act* (SARA).

Fisheries and Oceans Canada (DFO) Science has been asked to undertake a Recovery Potential Assessment (RPA) for the Eastern Pondmussel, Fawnsfoot, Mapleleaf and Rainbow. DFO Science developed the RPA framework to provide the information and scientific advice required for the Department to meet various requirements of the SARA including listing decisions, authorizations to carry out activities that would otherwise violate the SARA and development of recovery strategies. The advice in the RPA may be used to inform both scientific and socio-economic elements of the listing decision, as well as development of a recovery strategy and action plan, and to support decision-making with regards to the issuance of permits, agreements and related conditions, as per section 73, 74, 75, 77 and 78 of SARA.

This advisory meeting is being held to assess the recovery potential of Eastern Pondmussel, Fawnsfoot, Mapleleaf and Rainbow. The resulting RPA Science Advisory Report will summarize the current understanding of the distribution, abundance and trend of these species, along with recovery targets and times to recovery. The current state of knowledge about habitat requirements, threats to both habitat and to the species, and measures to mitigate these impacts, will also be included in the Science Advisory Report.

Objectives

The intent of this meeting is to assess the recovery potential of the Eastern Pondmussel, Fawnsfoot, Mapleleaf and Rainbow using the 17 steps in the RPA framework outlined in the Summary section of the Revised Protocol for Conducting Recovery Potential Assessments (available at: http://www.dfo-mpo.gc.ca/csas/Csas/status/2007/SARAS2007_039_e.pdf). The advice will be provided to the DFO Minister for her consideration in meeting various requirements of SARA for these species.

Products

The meeting will generate a proceedings report summarizing the deliberations of the participants. This will be published in the Canadian Science Advisory Secretariat (CSAS) Proceedings Series. There will be CSAS Research Documents produced from the working

papers presented at the meeting. Advice from the meeting will be published in the form of a Science Advisory Report.

Participants

Experts from DFO, Environment Canada, Ontario Ministry of Natural Resources, Walpole Island First Nations, Bishops Mills Natural History Centre, conservation authorities and academia have been invited to this meeting. Participants will not exceed a maximum of 20 people.

Appendix 2. Meeting Participants

Recovery Potential Assessment of Eastern Pondmussel (*Ligumia nasuta*), Fawnsfoot (*Truncilla donaciformis*), Mapleleaf (*Quadrula* quadrula), and Rainbow (*Villosa iris*)

Regional Advisory Meeting – Central and Arctic Region

Burlington Art Centre, Burlington, ON

19-20 October 2010

LIST OF CONFIRMED PARTICIPANTS

Last Name	First Name	Affiliation
Adam	Jeff	Fisheries and Oceans Canada
Bouvier	Lynn	Fisheries and Oceans Canada
Carney	Joseph	Lakehead University
Doherty	Andrea	Fisheries and Oceans Canada
Hogg	Sarah	Ontario Ministry of Natural Resources
Koops	Marten	Fisheries and Oceans Canada
Mackie	Gerry	University of Guelph Emeritus
McGoldrick	Daryl	Environment Canada
Morris	Todd	Fisheries and Oceans Canada
Presenger	Ashley	Fisheries and Oceans Canada
Reid	Scott	Ontario Ministry of Natural Resources
Schueler	Fred	Bishops Mills Natural History Centre
Sinnatamby	Nilo	Note taker
Wright	Jenn	Grand Conservation Authority
Young	Jen	Fisheries and Oceans Canada

Appendix 3. Agenda

Recovery Potential Assessment
Eastern Pondmussel, Fawnsfoot, Mapleleaf, and Rainbow
Regional Peer Review Meeting – Central and Arctic Region

Burlington Art Centre
1333 Lakeshore Road
Burlington, ON

19-20 October 2010

Co-chairs: Todd Morris and Lynn Bouvier

Day 1

• Welcome and Introductions	Todd Morris
• Purpose of Meeting	Todd Morris
• Species Status and Habitat Requirements	Lynn Bouvier
• Population Status	Lynn Bouvier
• *Break (refreshments provided)*	
• Population Status (continued)	Lynn Bouvier
• Recovery Modelling	Jennifer Young
• *Lunch (provided)*	
• Threats	Todd Morris
• *Break (refreshments provided)*	
• Threats (continued)	Todd Morris

Day 2

• Threats (continued)	Todd Morris
• *Break (refreshments provided)*	
• Alternatives to Activities/Feasible Mitigation Methods	Lynn Bouvier
• Sources of Uncertainty	Lynn Bouvier
• Wrap-up	Todd Morris